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(71) Applicant: Space Systems/Loral, Inc.
Palo Alto, California 94303 (US)

(72) Inventors:
• Smith, Terry M.
La Honda, California 94020 (US)
• Marshburn, James P.
San Jose, California 95138 (US)

(74) Representative: Vaufrouard, John Charles
Elkington and Fife
Prospect House
8 Pembroke Road
Sevenoaks, Kent TN13 1XR (GB)

(54) Positionable satellite antenna with reconfigurable beam

(57) An antenna system (10A), is suitable for use on a communication satellite encircling the earth, and has a reflector (18) illuminated by a set of feed elements (22) wherein one of the feed elements generates a primary beam (30). The reflector (18) is shaped to establish a specific configuration of the beam, and, upon illumination of the earth, there results a specific shape to the beam footprint (38). A mechanical positioning device (16) connects the antenna with a body (14) of the space-craft for adjusting an orientation of the feed antenna (12)

and its beam (30) relative to the body (14) of the space-craft. Control circuitry (26) for adjustment of signal strengths and phase shifts of signals sent to respective ones of the feeds (22) is accomplished by electronic circuitry including a memory (52) which stores coefficients employed in the operation of variable power dividers (62) and variable phase shifters (60) of a feed network (46A) supplying electromagnetic signals to the feed. The memory is addressed to provide a desired correction to beam configuration corresponding to a specific orientation of the antenna.

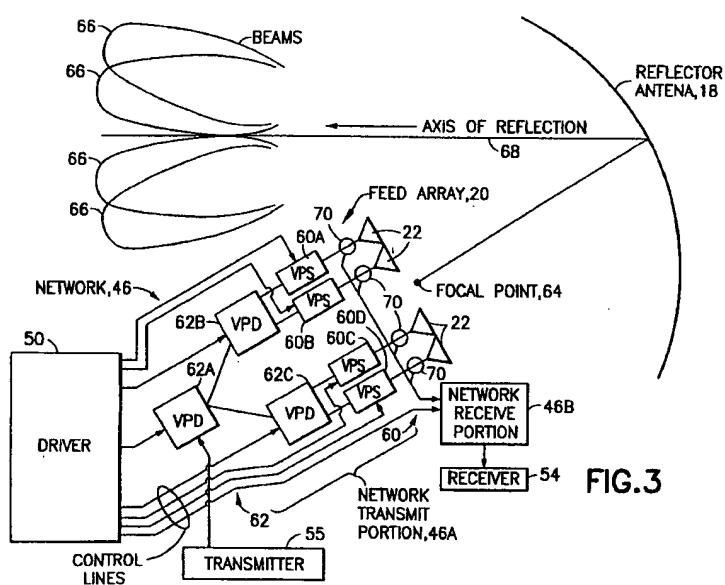


FIG.3